**Recommendations for processing**

### DENSOLEN® Tape Systems

**Application temperature**
- **Pipe surface**: min. +3°C (+5°F) above dew point
- **Ambient**: -40°C up to +60°C (-40°F up to +140°F)

**DENSOLEN®-MTS25 Primer**: -10°C up to +50°C (+14°F up to +122°F)

**DENSOLEN® Tape**: -10°C up to +50°C (+14°F up to +122°F)

In order to avoid wrinkling due to thermal elongation of the PE carrier film, the temperature difference between pipe surface (before and after tape application) and tape roll should be max. +30°C (+54°F).

**Under prolonged exposure to sunlight, the finished wrapping should be covered with a suitable material (e.g. DENSOLEN®-DRM PP Rockshield).**

**Steel surface condition**
- **Cleanliness (ISO 8501-1)**
  - min. ST2
- **Roughness (ISO 8503-1)**
  - 50 - 100 µm

### 1. Cleaning
- The areas to be coated (steel surface and adjacent factory coating) have to be clean, dry, and free from grease and dust.
- All contamination which might act as a release agent (e.g. greases, oils, varnishes, temporary protecting paints, coupling agents) have to be completely removed prior to tape application. Use suitable solvent if necessary.
- After use immediately close and seal primer coating (thoroughly stir in original drum until any bottom settings are dissolved).

### 2. Drying
- Humidity and ice have to be removed by drying with a torch flame.
- Thoroughly stir **DENSOLEN®-Primer** in original drum until any bottom settings are dissolved.
- By using a brush or roller apply a thin even coat of primer to the cleaned and dried surface.
- The factory coating has to be primed in a width of the cleaned and roughened area on each side.
- After use immediately close and seal primer drum. Clean brush or roller with suitable solvent (e.g. white spirit).

### 3. Surface Preparation
- Let the primer dry until it is tack free.
- The drying time depends on ambient temperature and air movement (approx. 10-30 min.).
- The primed surface should be wrapped immediately within 6 h. Otherwise or in case of contamination (e.g. dust) the primer coat has to be renewed.

### 4. Transition to Factory Coating
- Transitions to adjacent factory coating should be bevelled by use of a round shaped rasp (recommended angle: ≤ 30°).

### 5. Preparation of Factory Coating
- Adjacent factory coating has to be cleaned as minimum in double tape width. Use suitable solvent if necessary.
- Remove interleaving.
- Cleaned factory coating has to be circumferentially roughened with coarse emery cloth. Remove grinding dust.

### 6. Priming
- Remove grinding dust.
- The areas to be coated (steel surface and adjacent factory coating) have to be clean, dry, and free from grease and dust.
- All contamination which might act as a release agent (e.g. greases, oils, varnishes, temporary protecting paints, coupling agents) have to be completely removed prior to tape application. Use suitable solvent if necessary.
- After use immediately close and seal primer coating (thoroughly stir in original drum until any bottom settings are dissolved).

### 7. Priming - Drying
- If using **DENSOLEM®-MTS25 Primer** wrapping devices, wrapping can start in spiral motion instead of one circumferential wrap (inner and outerwrap).
- Select the tape attachment so that the overlap of the factory coating is at least 50mm at each point. (Tape attachment = tape width +50mm)

### 8. Innerwrap
- Remove interleaving.
- The tape width should be limited to max. 50 mm.

### 9. Innerwrap
- Tape tension is sufficient, if tape width is narrowed by app. 1% during application.
- The innerwrap should cover the full circumference of the adjacent factory coating by a width of min. 50 mm.

### 10. DENSOMAT® Wrapping
- When using **DENSOMAT®** wrapping devices, wrapping can start in spiral motion instead of one circumferential wrap (inner and outerwrap).
- The outerwrap should at least fully cover the innerwrap. It is recommended to start wrapping by covering the innerwrap by 1% of tape width.
- Spary wrap the outerwrap tape (e.g. **DENSOLEN®-3-ply tapes with grey side facing the pipe surface**) under tension with min. 50% overlap around the pipe.

### 11. Outerwrap
- In case of hand wrapping (tape width max. 50 mm) start with one circumferential wrap before spirally wrapping the tape. (Start of wrapping: min. 50 mm on factory coating).
- Spary wrap tape (e.g. **DENSOLEN®-3-ply tapes with grey side facing the pipe surface**) under tension with min. 50% overlap around the pipe.

### 12. Outerwrap
- Tape overlap: Min. 50%.
- Tape tension is sufficient, if tape width is narrowed by app. 1% during application.
- Remove interleaving.

**Testing**
- No wrinkles are allowed in the finished wrapping on visual testing.
- The wrapping has to be tested for freedom from pores with high voltage holiday detector. Test voltage: 5 kV + 5 kV per mm of coating thickness, max. 25 kV.

**Recommendations**
- It is highly recommended to use **DENSOMAT®** wrapping devices for application of tapes wider than or equal to 50 mm.
- In order to ensure that tapes are applied with sufficient wrapping tension, the tape width should be limited to max. 150 mm.

**The above application instruction can also be transferred to the wrapping of full pipe length or pipe bends.**

---

**Our product information, our application recommendations and other product related documents are made for your convenience only. Since many installation factors are beyond our control, the user must determine the suitability of the products for the intended end-use and assume all risks and liabilities in connection therewith. All information contained in this document is to be used as a guide and does not constitute a warranty of specification. The information contained in the document is subject to change without notice. For this reason, no liability can be accepted for inaccurate information or any failure to provide advice. The user is responsible for checking the applications of the product and verifying its suitability for the intended use. Our General Terms of Sale, which are available at www.denso-group.com, shall be decisive without any exception.**

---

**DENSO GmbH**

P.O. Box 150120 | 51344 Leverkusen | Germany
Phone: +49 214 26 02-0
www.denso-group.com | info@denso-group.com